SSURGO - soil intersection weighting failure

Posted by Nicholas Hayden - 2008/01/11 17:06

I am trying to run a model using SSURGO data, and I am getting the "Weighting the soil intersection failed" error. The SSURGO layer is projected properly and the database has the proper tabular files imported, so I'm not sure what is going on.

As a side note, is the "Help" button functional in the current version of AGWA2? I get a "Could not locate AGWA.chm" error when I try to open it. If not, is there another location that might have a list of errors and their causes?

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Re:SSURGO - soil intersection weighting failure

Posted by isburns - 2008/01/16 18:14

Can you zip the soil shapefile and database and post it somewhere I can download it? I'll take a look at it here and run it through the debugger to see what is going on. I think they'll be too big to upload directly to this message board, though if you can't post it somewhere we may be able to work around the size limitation.

The Help button and compiled help version of manual are being worked on and will be fixed soon, but you should be able to find the same information that will be available in that in the PDF version of the manual (available in your AGWA2/documentation folder or in the Documentation section of the Downloads.

Shea

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Re:SSURGO - soil intersection weighting failure

Posted by Nicholas Hayden - 2008/01/17 04:06

Shea-

I've zipped the soils shapefile and database, they are available at http://www.mediafire.com/?8amjd8d1dmx (hopefully this link works, I've never used mediafire before it seems like it'll work without you having to register or anything). Thanks for helping me out with this.

-Nick

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Re:SSURGO - soil intersection weighting failure

Posted by isburns - 2008/01/17 20:21

Hi Nick,
I am able to download it without registering, thanks. I'll take a look at what's going on and get back to you.

Shea

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Re:SSURGO - soil intersection weighting failure
Posted by isburns - 2008/04/23 18:18

Nick,
My sincere apologies about never getting back to you. Another message was posted about soils intersection weighting failure and I looked back to see what the problem/solution was here only to see that I never posted back. Anyway, I'm not sure if you've moved on or not, but I'm taking a look right now and will post back later today.

The file you uploaded to mediafire was a soilmu_a_ca053.shp and associated Access database, correct?

Shea

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Re:SSURGO - soil intersection weighting failure
Posted by isburns - 2008/05/02 17:37

I was able to discretize, parameterize, and run SWAT, but I'm failing to get a good discretization in KINEROS so subsequent parameterizations also fail. I'm not using the same DEM you used and don't know what your outlet was, so I'm not sure if my problems are related to yours or not.

The KINEROS discretizations are failing because the subwatersheds are not being split by the planes properly. I can't tell why this is happening but it seems to be a data precision issue in the discretization. As watershed size/extent increases, the max precision decreases, but there doesn't seem to be a hard relationship between extent, precision, and successful splitting of KINEROS planes.

Shea

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Re:SSURGO - soil intersection weighting failure
Posted by Nicholas Hayden - 2008/05/02 18:01

Shea-

I've been playing around with some other models with limited success, I haven't gone back to AGWA since I got stuck with that watershed.

SWAT is what I am interested in running, so if that worked for you I might revisit my dataset and give it a try again.

Thanks,
Nick

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Re:SSURGO - soil intersection weighting failure

Posted by mrakovan - 2008/08/19 23:44

Hi Shea,

I ran Kinero sucessfully in December but was not happy with the 10M DEM for the small watershed I have. Now I have the 2.5ftDEM from LIDAR, I ran the program again using the same files. But I got the soil intersection weighting failure error message. Any advice?

Thanks very much.

Monica

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Re:SSURGO - soil intersection weighting failure

Posted by mrakovan - 2008/08/21 22:28

I got it. Never mind.

Monica

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Re:SSURGO - soil intersection weighting failure

Posted by karrez - 2009/09/29 21:24

Im having the same problems. I've already commented on another SSURGO post, but i figured what the hell, might as well comment on another. Im using SSURGO data for 13 counties which i merged and imported (otherwise seemingly successfully). i am using the Access 2002 database format, and Arc 9.3. oh, and i am doing all this in preparation for running the SWAT model as opposed to KINEROS.

any pointers?

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Re:SSURGO - soil intersection weighting failure

Posted by isburns - 2009/10/05 19:15

Karrez,
Have you tried a parameterization on a smaller watershed that only uses one soil survey to see if that will work? Are there any large bodies of water in the area you are parameterizing? The SSURGO parameterization won't run if the majority of one of your watershed elements is covered by a MUKEY representing water.

Aside from that, an update to AGWA should be posted this week that will have more informative error messages that will hopefully get you pointed in the right direction if the above doesn't help locate the problem.

Shea

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Re:SSURGO - soil intersection weighting failure
Posted by karrez - 2009/10/05 19:44

Appreciate your response. i have not tried parameterizing a smaller basin, but i will. there are in fact 3 large reservoirs in my basin. if that is in fact the cause of my problems, what are my options, aside from picking a new study area? :(

thanks again for the input. I look forward to the update. :)

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Re:SSURGO - soil intersection weighting failure
Posted by isburns - 2009/10/05 20:05

The best option to identify if the reservoirs or an equally problematic special case is the source of the problem is to check the component table for "Miscellaneous area" in the "compkind" (alias "Kind") field. Because you're working with a large area, this will be kind of painstaking, but you'll want to identify the Miscellaneous area soil elements that intersect your watershed and then try changing the MUKEYs of those soil elements in your soils theme to a non Miscellaneous Area (make a copy of the soils theme first so you still have the original).

Also, if you'd like to get a run completed first just to show a little progress, try using STATSGO. STATSGO is susceptible to the same problem but less likely to encounter is since the soil polygons are larger and more generalized, resulting in less soil elemens defined as Miscellaneous area.

Shea

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Re:SSURGO - soil intersection weighting failure
Posted by karrez - 2009/10/06 19:47

Sure enough, that was the problem. i looked in the "compkind" field in both the SSURGO and STATSGO database and found "miscellaneous area." in the STATSGO they were all waterbodies, and in the SSURGO they were all sorts of different landcover. the problem i foresee now is with changing the MUKEYs to numbers which don't significantly alter the behavior of the basins i.e. i don't want to change a water MUKEY to a pasture MUKEY, or barren land to agriculture or the outputs of SWAT won't be realistic.

i'll comment again after i get this sitch worked out.

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Re:SSURGO - soil intersection weighting failure

Posted by karrez - 2009/10/13 00:29

Shea, could you direct me to where i can find out exactly what AGWA accesses from the soils databases? i have been looking in the SWAT manual and the AGWA manual but all i can find is a list and description of the outputs of the Landcover and Soil Parameterization step.

i am hoping that if i can figure out what AGWA needs from the database i can possibly fudge the data to get around the waterbodies-in-my-basins MUKEY problem mentioned above.

any thoughts?

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Re:SSURGO - soil intersection weighting failure

Posted by isburns - 2009/11/06 21:08

AGWA accesses three tables from the SSURGO database. The tables are the component, chorizon, and chtexturegrp tables.

The following fields are queried for SWAT:
component table
-mukey
-cokey
-comppct_r
-compname
-compkind
-hydgrp

chorizon table
-cokey
-chkey
-hzdept_r
-hzdepb_r
-sandtotal_r
-silttotal_r
-claytotal_r
-om_r

-dbthirdbar_r
-sieveno10_r
-awc_r
-kffact

chtexturegrp table
-chkey
-texture

The MUKEY, COKEY, and CHKEY values determine what records need to be populated. Basically, the MUKEYs are determined by intersecting the soils layer with the watershed. Each MUKEY is represented by several different COKEYs (components) and each component has different CHKEYs (horizons), and each horizon can have different textures. So, once you determine what MUKEYs intersect your watershed, you can find out what records in each table need to be populated.

Shea

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Re:SSURGO - soil intersection weighting failure

Posted by rvanremo - 2010/02/16 23:49

I've been following this thread and several others with interest, because I'm also experiencing the "weighting the soil intersection failed" error (I'm using the ArcGIS 9.2 build of AGWA2). I can certainly subset all occurrences of 'miscellaneous area" within the component table and then repopulate the designated SSURGO variables in the 3 required tables using other imputed values, but it begs the question: How would I go about determining what values to assign? Should the values be those drawn from adjacent soil MUs? Or watershed-average values? Or is there some way I can mask out the miscellaneous areas altogether from the SWAT analysis? Thanks for any thoughts you could provide me.
Rick.

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Re:SSURGO - soil intersection weighting failure

Posted by karrez - 2010/02/17 18:07

-this is what I did-
First, in the soils shapefile i changed the MUKEYS of polygons representing water to MUKEYS representing floodplain soils (not an ideal solution, but for the purposes of my research it's reasonable) leaving all other miscellaneous areas alone, and the model seems to be fine with this, as long as large water bodies are not present. If you change the MUKEYs in the shapefile (with which AGWA relates data from the three database tables to the spatial dataset) you don't have to actually change anything in the tables.
I am still having problems with the model however, getting this message every time i attempt to run the Landcover and Soil parameterization,"there was an error determining the soil units for MUKEY '#######'. I will direct you to my forum post titled error determining the soil inputs for MUKEY... for further information. at least i seem to have gotten AGWA past the problem with miscellaneous areas though. :/

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Re:SSURGO - soil intersection weighting failure

Posted by rvanremo - 2010/02/17 18:49

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Thanks for the floodplain soils tip, Kary, I'll give it a try. Good luck getting that one oddball mukey to fly... Rick.

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